

**IN THE CLAIMS:**

Please cancel claims 31, 35, 37, 41, 44, 45, and 46 without prejudice to or disclaimer of the subject matter recited therein.

Please amend claims 32, 33, 34, 36, 38, 39, 40, 42 and 43 and add new claims 47, 48, 49 and 50 as follows:

Claims 1-30. (Canceled)

Claim 31. (Canceled)

Claim 32. (Currently Amended) The motor having the rotor with built-in permanent magnets according to Claim ~~31~~ 38, wherein the permanent magnets are positioned with interlaced magnetic poles.

Claim 33. (Currently Amended) The motor having the rotor with built-in permanent magnets according to Claim ~~31~~ 38, further comprising a stator having a plurality of teeth forming an cylindrical interior into which the rotor is inserted, the plurality of teeth being separated by a plurality of slots.

Claim 34. (Currently Amended) The motor having the rotor with built-in permanent magnets according to Claim ~~31~~ 38, wherein the cylindrically shaped rotor core is made of magnetic permeable material.

Claim 35. (Canceled)

Claim 36. (Currently Amended) The motor having the rotor with built-in permanent magnets according to Claim ~~31~~ 38, wherein the cylindrically shaped rotor core includes a plurality of stacked silicon steel pieces to form the cylindrically shaped rotor core.

Claim 37. (Canceled)

Claim 38. (Currently Amended) ~~The motor having the rotor with built-in permanent magnets according to Claim 31, wherein a third side and a fourth side~~ A motor having a rotor with built-in permanent magnets, the rotor comprising:

- a) a cylindrically shaped rotor core having:
  - 5 i) a central axial hole; and
  - ii) a plurality of openings surrounding the central axial hole, each opening has at least six surfaces including a top flat surface and a bottom flat surface, the top flat surface is adjacent to the contour of rotor core and extends along the circumference of  
10 the contour to form two side surfaces respectively on two ends of the opening, and a distance is between the two side surfaces and the contour of rotor core, and a channel having a predetermined width is located between two parallel channel side surfaces; and
- 15 b) a plurality of permanent magnets, each of the plurality of permanent magnets having a cross-section that matches each of the plurality of openings, each magnet being inserted into one of the plurality of openings.

20 wherein the two side surfaces in each of the plurality of openings are each parallel with an outer radius contour of the cylindrically shaped rotor core.

Claim 39. (Currently Amended) The motor having the rotor with built-in permanent magnets according to Claim 31 ~~43~~, wherein ~~a third side and a fourth side~~ the two side surfaces in each of the plurality of openings are straight.

Claim 40. (Currently Amended) The motor having the rotor with built-in permanent magnets according to Claim 31 ~~43~~, wherein ~~a third side and a fourth side~~ the two side surfaces in each of the plurality of openings each have a curved shape.

Claim 41. (Canceled)

Claim 42. (Currently Amended) The motor having the rotor with built-in permanent magnets according to Claim 34 ~~38~~, wherein the plurality of openings in the cylindrically shaped rotor core includes four openings, and the plurality of permanent magnets includes four magnets.

Claim 43. (Currently Amended) ~~The motor having the rotor with built-in permanent magnets according to Claim 31,~~ A motor having a rotor with built-in permanent magnets, the rotor comprising:

- a) a cylindrically shaped rotor core having:
  - 5           i) a central axial hole; and
  - ii) a plurality of openings surrounding the central axial hole, each opening has at least six surfaces including a top flat surface and a bottom flat surface, the top flat surface is adjacent to the contour of rotor core and extends along the circumference of  
10 the contour to form two side surfaces respectively on two ends of the opening, and a distance is between the two side surfaces and the contour of rotor core, and a channel having a predetermined width is between two parallel channel side surfaces; and
- 15           b) a plurality of permanent magnets, each of the plurality of permanent magnets having a cross-section that matches each of the plurality of openings, each magnet being inserted into one of the plurality of openings.

~~wherein the at least four sides in the plurality of openings of the cylindrically shaped rotor core includes six surfaces, a third side surface of each of the plurality of openings being parallel with a fourth side surface of an adjacent one of the plurality of openings.~~

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Claims 44-46. (Canceled)

Claim 47. (New) The motor having the rotor with built-in permanent magnets according to Claim 43, wherein the permanent magnets are positioned with interlaced magnetic poles.

Claim 48. (New) The motor having the rotor with built-in permanent magnets according to Claim 43, further comprising a stator having a plurality of teeth forming an cylindrical interior into which the rotor is inserted, the plurality of teeth being separated by a plurality of slots.

Claim 49. (New) The motor having the rotor with built-in permanent magnets according to Claim 43, wherein the cylindrically shaped rotor core is made of magnetic permeable material.

Claim 50. (New) The motor having the rotor with built-in permanent magnets according to Claim 43, wherein the cylindrically shaped rotor core includes a plurality of stacked silicon steel pieces to form the cylindrically shaped rotor core.